

FORM PTO-1390
(REV 10-94)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER
(198/40109) Case 469-PCT

TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

10/070233

INTERNATIONAL APPLICATION NO.
PCT/GB00/00033

INTERNATIONAL FILING DATE
August 31, 2000

PRIORITY DATE CLAIMED
September 3, 1999

TITLE OF INVENTION: PORTABLE LOAD INDICATING DEVICE FOR A RAIL VEHICLE

APPLICANT(S) FOR DO/EO/US Paul Andrew HORSFALL

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(I).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ Amendments to the specification of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are transmitted herewith in the International Application (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). (**UNEXECUTED**).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☐ Other items or information:
 - a. ☒ Applicant hereby claims small entity status.
 - b. ☐ Abstract
17. ☒ International Search Report

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U.S. APPLICATION NO (If known, see 37 CFR 1.5) <div style="font-size: 1.5em; font-weight: bold;">10/070233</div>		INTERNATIONAL APPLICATION NO PCT/GB00/03267		ATTORNEY'S DOCKET NUMBER (198/40117) Case 471-PCT	
17. <input checked="" type="checkbox"/> The following fees are submitted: BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)): Search Report has been prepared by the EPO or JPO \$890.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) \$710.00 No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) \$740.00 Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$1,040.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) \$100.00				CALCULATIONS PTO USE ONLY	
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$ 890.00	
Surcharge of \$130.00 for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492(e)).				<input type="checkbox"/> 20 <input checked="" type="checkbox"/> 30 \$ 130.00	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	11 - 20 =	-0-	X \$18.00	\$ -0-	
Independent claims	1 - 3 =	-0-	X \$80.00	\$ -0-	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$280.00	\$ 280.00	
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SUBTOTAL =				\$ 650.00	
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Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				+ \$ -0-	
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SEND ALL CORRESPONDENCE TO:

RICHARD A. GIANGIORGI, ESQ.
 TREXLER, BUSHNELL, GIANGIORGI,
 BLACKSTONE & MARR, LTD.


 Signature

RICHARD A. GIANGIORGI
 Name

PATENT

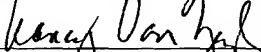
**IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE**

In re Application of
Applicant: Paul Andrew HORSFALL
Serial No.: To be assigned
Filed: February 28, 2002
For: PORTABLE LOAD
INDICATING DEVICE FOR
A RAIL VEHICLE
Group Art Unit: To be assigned
Examiner: To be assigned
Attorney Docket No.: 198/40109/469-PCT)

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Assistant Commissioner For Patents, Washington, D.C. 20231-0001 .



Nancy VanZeyl

PRELIMINARY AMENDMENT

Assistant Commissioner For Patents
Washington, D.C. 20231-0001

Sir:

In the matter of the above-identified application, kindly enter the following Amendment before examining the application:

IN THE SPECIFICATION:

Page 1, as the first paragraph following the title, insert the following:

--Related/Priority Application

This application claims priority with respect to British Application No. 9920715.1, filed September 3, 1999 and PCT Application No. PCT/GB00/03333, filed August 31, 2000.--

IN THE CLAIMS:

Please cancel the current set of claims in this application, and replace with the following set of new claims:

CLAIMS

13. Apparatus for indicating the load imposed by each axle and/or each wheel of a railway vehicle comprising two substantially convex carrier shoes adapted to be urged apart
5 into clamped positions along the adjacent sides of a pair of rails so as to be engageable by the peripheries of the flanges of the wheels on an axle whereby the tyres of said wheels are raised just clear of the rails, a load-sensing device disposed at the highest portion of each shoe, and load-indicating means connected to said devices, wherein the apparatus is sectional, characterised in that the shoes are adapted to be urged apart
10 into their clamped positions by means of two struts each of which extends between the shoes to enhance the rigidity of the apparatus whilst being readily separable from the shoes to facilitate portability of the struts and shoes.
14. Apparatus according to claim 13 wherein each strut abuts, when in operative position,
15 at one end against one of the shoes and at the other end against a nut on a screw-threaded spigot rigidly secured to the other of the shoes.
15. Apparatus according to claim 14 wherein each strut is tubular and fits closely at said
one end over a plain spigot rigidly secured to one of the shoes and at the other end
20 over that end of the screw-threaded spigot remote from the other of the shoes.
16. Apparatus according to claim 15 wherein each shoe has rigidly secured to it one screw-threaded spigot and one plain spigot whereby both shoes have the same uniform
configuration.

25

17. Apparatus according to claim 13 wherein each shoe has at least one carrying handle rigidly secured to it.

18. Apparatus according to claim 13 wherein each device comprises a load-sensing cell
5 fixedly mounted near both of its ends on lands in a recess on the associated shoe, and a load-plate spaced above and rigidly secured to a central zone of said cell, the upper surface of the load-plate being substantially flush with the highest portion of the shoe.

19. Apparatus according to any one of claims 13 to 18 wherein the load-indicating means
10 are a computer capable of showing and recording the load imposed by individual axles and/or individual wheels.

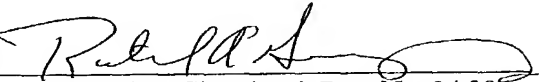
20. Apparatus according to any one of claims 13 to 18 wherein the load-indicating means
15 are a digital indicator capable of showing the load imposed by individual axles and/or individual wheels.

21. Apparatus according to claim 13 wherein at least one support member is secured to
each shoe so as effectively to embrace the outer and lower faces of the shoe, the or
each support member being vertically adjustable relative to the shoe to suit different
20 heights of rails.

22. Apparatus according to claim 21 wherein two spaced-apart support members are
secured to each shoe.

23. Apparatus according to claim 13 wherein the shoes are provided with replaceable wear-strips aligned with the load-sensing devices for engagement by the peripheries of the flanges of the wheels.

Respectfully submitted,

By 

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WO 01/18505

PORTABLE LOAD INDICATING DEVICE FOR A RAIL VEHICLE

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JC13 Rec'd PC/PTO 28 FEB 2002

This invention relates to apparatus for indicating the
 load imposed by each axle and/or each wheel of a rail
 vehicle.

5 It is necessary to check such loads statically, for
 example after the assembly of a bogie, because rail track
 systems impose limits on the weight of rolling stock to
 prevent excessive wear of the rails. This has previously
 required a fixed installation, usually a weigh-bridge, to
 10 which the bogie must be transported. This is a time-
 consuming operation, and an accuracy of less than about 10
 kilograms is not obtainable. Furthermore, with the advent
 of rail privatisation, it is likely that rail track systems
 will charge rolling stock operators by the weight of a
 15 train instead of by its length as at present, so that the
 dynamic checking of the loads imposed by all the axles of a
 moving train will become necessary. It is a time-consuming
 and costly operation to drive a whole train to a remote
 fixed weighing installation.

20 Our U.K. Patent Application No: 9715092.4 discloses
 load-indicating apparatus which is sectional so as to be
 portable and capable of installation on any length of
 existing conventional track.

25 The object of the present invention is to provide
 sectional load-indicating apparatus having superior
 rigidity to that of our aforesaid application. A further

object is to provide such apparatus which is even more readily portable.

According to the invention, apparatus for indicating the load imposed by each axle and/or each wheel of a railway vehicle comprises two substantially convex carrier shoes adapted to be ^{urged apart into clamped positions} ~~clamped~~ along the adjacent sides of a pair of rails so as to be engageable by the peripheries of the flanges of the wheels on an axle whereby the tyres of said wheels are raised just clear of the rails, a load-sensing device disposed at the highest portion of each shoe, and load-indicating means connected to said devices, ^{the apparatus being characterized in that the shoes are} wherein the apparatus is sectional, ~~the shoes being~~ adapted to be urged apart into their clamped positions by means of each of which ^{extends between the shoes to enhance the rigidity of the} ~~two struts which are~~ readily separable from the shoes to facilitate portability of the struts and shoes.

Each strut preferably abuts, when in operative position, at one end against one of the shoes and at the other end against a nut on a screw-threaded spigot rigidly secured to the other of the shoes.

Preferably, each strut is tubular and fits closely at said one end over a plain spigot rigidly secured to one of the shoes and at the other end over that end of the screw-threaded spigot remote from the other of the shoes.

Preferably, also, each shoe has rigidly secured to it one screw-threaded spigot and one plain spigot whereby both shoes have the same uniform configuration.

apparatus whilst being

Each shoe preferably has at least one carrying handle rigidly secured to it.

Preferably, each device comprises a load-sensing cell fixedly mounted near both of its ends on lands in a recess
5 in the associated shoe, and a load-plate spaced above and rigidly secured to a central zone of said cell, the upper surface of the load-plate being substantially flush with the highest portion of the shoe.

The load-indicating means may be a computer capable of
10 showing and recording the load imposed by individual axles and/or individual wheels.

Alternatively, the load-indicating means may be a digital indicator capable of showing the load imposed by individual axles and/or individual wheels.

15 Preferably, at least one support member is secured to each shoe so as effectively to embrace the outer and lower faces of the shoe, the or each support member being adjustable in height to suit the cross-sectional profiles of different types of rails.

20 Preferably, also, two spaced-apart support members are secured to each shoe.

The shoes are preferably provided with replaceable wear-strips aligned with the load-sensing devices for engagement by the peripheries of the flanges of the wheels.

A preferred embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, of which:-

Figure 1 is a plan view of portable apparatus for
5 indicating the load imposed by each axle and/or each wheel of a rail vehicle, with conventional electrical components omitted;

Figure 2 is a plan view on a larger scale of a load-sensing device forming part of said apparatus;

10 Figure 3 is a side elevation of the load-sensing device in the direction of arrow 3 in Figure 2; and

Figure 4 is an end elevation of the load-sensing device in the direction of arrow 4 in Figure 3, showing how said device co-acts with a rail.

15 Referring now to Figure 1 of the drawings, apparatus for indicating the load imposed by each axle and/or each wheel of a rail vehicle is sectional to facilitate its portability, and includes two solid carrier shoes 10. Each shoe 10 is short enough to fit between adjacent rail clamps
20 on a length of conventional track, and is substantially convex in the sense that its top surface has plane end portions 12 inclined downwardly at an angle of, say, two to five degrees from its central highest plane portion 14 as shown in Figure 3. The shoes 10 are adapted to be urged
25 apart to clamp them with a very high degree of rigidity along and against the adjacent sides of a pair of rails

such as 16 (see Figure 4) by means of two spaced-apart parallel struts 22 which are readily separable from the shoes 10. To this end, each strut 22 abuts, when in its operative position shown in Figure 1, at one end against one of the shoes 10 and at the other end against a washer 24 and a nut 26 on a screw-threaded spigot 28 rigidly secured by welding to the other of the shoes 10. Each strut 22 is tubular and fits closely at said one end over a plain spigot 30 rigidly secured by welding to one of the shoes 10 and at said other end over that end of the screw-threaded spigot 28 remote from the other of said shoes. Each shoe 10 has welded to it one screw-threaded spigot 28 and one plain spigot 30 whereby both shoes 10 have the same uniform configuration. Each of the screw-threaded spigots 28 also carries a lock-nut 32 which is tightenable against the nut 26. Each shoe 10 also has rigidly secured to it by welding two carrying handles 34. When the apparatus is unclamped, the separability of the struts 22 from the shoes 10 facilitates portability of the apparatus by allowing each strut and each shoe to be handled individually. Struts 22 of different lengths can be provided to suit different track gauges, that is to say different spacings between pairs of rails.

Referring now to Figure 4 of the drawings, two spaced-apart support members or keys 36 of L-shaped cross-section are secured to each shoe 10 by respective set-screws (not

shown) each of which passes through a vertical slot 42 in the associated member 36 and engages in the shoe 10 so that the effective height of said shoe is adjustable. The horizontal base portion 38 of each member 36 fits within a
5 rebate 40 in the associated shoe 10 when minimum effective height is required as shown. The shoe 10 and the member 36 are formed with complementary male and female radii 44 to provide stress relief in and thus maximum strength of the member 36. When the apparatus is fitted to a taller rail,
10 packing pieces or shims (not shown) are inserted between the horizontal base portion 38 of each member 36 and the co-operating face of the rebate 40 as required. Members 36 of different outer and/or lower profiles, and/or of different sizes, can be provided to suit different types of
15 rails. The arrangement is such that each member 36 rests on the base flange of the rail 16, regardless of the height of its profile, and effectively embraces the outer and lower faces of the associated shoe 10.

Referring now to Figures 2 and 3, a load-sensing
20 device indicated generally at 46 is disposed at the highest portion 14 of each shoe 10 and comprises a load-sensing cell 48 fixedly mounted near both of its ends on two lands 50 by set-screws 52 in a recess 54 in each shoe 10, and a load-plate 56 is disposed above the cell 48 and rigidly
25 secured by two cap-screws 58 to a central zone of said cell, the upper surface of the load-plate 56 being

substantially flush with the highest portion 14 of said shoe. So that the load-plate 56 bears only upon the central zone of the cell 48, the end zones 60 of the lower surface of said load-plate are inclined as shown in Figure 3. Thus the load-plate 56 can bear only upon the central zone of the cell 48 without introducing any stress raisers into its lower surface. A shim 62 is shown interposed between the central zone of the cell 48 and the load-plate 56 to assist in calibration of the apparatus. The heads of the cap-screws 58 are secured by way of clearance holes 64 in the base of the shoe 10. No overload stop means are provided for the cell 48, as the space between said cell and the base of the recess 54 is more than sufficient to accommodate deflection of said cell resulting from the maximum load imposed on the load-plate 56. Each cell 48 is connected to an electrical socket (not shown) in the associated shoe 10, and said socket can be connected by a plug (not shown) on wiring 66 to conventional load-indicating means (not shown) comprising a digital indicator or a personal computer. The plug and socket are protected against physical damage and any ingress of water by a metal cover 68 provided with suitable rubber seals (not shown). Relatively small bending moments are exerted on the shoe 10 enabling the base of the recess 54 to be made relatively shallow without risk of distortion, which in turn enables the load-plate 56 to be made relatively deep and therefore

strong having regard to the overall height limit dictated by the cross-sectional profile of a rail. There are no screw-heads vulnerably disposed on the upper surface of the load-plate 56. The end portions 12 of the shoes 10 are
5 provided with replaceable hardened inset wear-strips 70 secured by set-screws 72 in alignment with the load-sensing devices 46. For maximum hardness, strength and wear-resistance, tool steel and/or armour-plating steel is/are employed wherever appropriate.

10 In operation, the apparatus is clamped between an existing pair of rails at any convenient location however remote so that its support members 36 rest on the base flanges of the rails (see Figure 4) while the upper faces of its shoes 10, and more precisely the load-plates 56
15 therein, are engageable by the peripheries of the flanges or toes of the wheels on an axle of a rail vehicle whereby the tyres of said wheels are raised just clear of, say about 4 millimetres above, the rails and the load imposed by the axle is borne by the cells 48. When approaching and
20 leaving the load-plates 56, the peripheries of the flanges of the wheels run on the aforesaid wear-strips. The flanges remain safely between the rails at all times. Both static and dynamic loading can equally well be accurately measured, a digital indicator being capable of showing the
25 loads imposed by individual axles and/or individual wheels and a computer being capable of showing and also recording

said loads. Where the loads imposed by the axles and/or the wheels of a bogie are to be measured, a typical bogie with a total weight of around 5 tonnes is easily pushed into a checking position on the apparatus by four men.

5 In a modification, the shim 62 is omitted and the load-plate 56 bears directly upon the cell 48.

Claims:-

1. Apparatus for indicating the load imposed by each axle and/or each wheel of a railway vehicle comprising two (10) adapted to be urged apart into clamped positions substantially convex carrier shoes ~~adapted to be clamped~~ (16) along the adjacent sides of a pair of rails ~~so as to be~~ engageable by the peripheries of the flanges of the wheels on an axle whereby the tyres of said wheels are raised just clear of the rails, a load-sensing device ~~disposed at the~~ (46) highest portion of each shoe, and load-indicating means connected to said devices, wherein the apparatus is characterized in that the shoes (10) are sectional, ~~the shoes being adapted to be urged apart into~~ (22) each of which extends between the shoes to enhance the rigidity of their clamped positions by means of two struts ~~which are~~ readily separable from the shoes to facilitate portability of the struts and shoes.
- 15 2. Apparatus according to claim 1, wherein each strut (22) abuts, when in operative position, at one end against one of the shoes ~~(10)~~ (26) and at the other end against a nut ~~(28)~~ on a screw-threaded spigot ~~(28)~~ rigidly secured to the other of the shoes (10). (22)
- 20 3. Apparatus according to claim 2, wherein each strut ~~(22)~~ is tubular and fits closely at said one end over a plain spigot ~~(30)~~ (10) rigidly secured to one of the shoes ~~(10)~~ (28) and at the other end over that end of the screw-threaded spigot ~~(28)~~ remote from the other of the shoes (10). (10)
- 25 4. Apparatus according to claim 3, wherein each shoe ~~(10)~~ has rigidly secured to it one screw-threaded spigot ~~(28)~~ and one

apparatus without being

11

(30) (10)
plain spigot/whereby both shoes/ have the same uniform
configuration.

5. Apparatus according to any one of the preceding
(10)
claims, wherein each shoe/ has at least one carrying handle (34)
5 rigidly secured to it.

6. Apparatus according to any one of the preceding
claims, wherein each device comprises a load-sensing cell (48)
fixedly mounted near both of its ends on lands/ (50) in a recess (54)
in the associated shoe/ (10), and a load-plate/ (56) spaced above and
10 rigidly secured to a central zone of said cell, the upper
surface of the load-plate/ (56) being substantially flush with
the highest portion of the shoe (10).

7. Apparatus according to any one of the preceding claims,
wherein the load-indicating means are a computer capable of
15 showing and recording the load imposed by individual axles
and/or individual wheels.

8. Apparatus according to any one of claims 1 to 6,
wherein the load-indicating means are a digital indicator
capable of showing the load imposed by individual axles
20 and/or individual wheels.

9. Apparatus according to any one of the preceding
(36)
claims, wherein at least one support member/ is secured to
(10)
each shoe/ so as effectively to embrace the outer and lower
(10), (36)
faces of the shoe/ the or each support member/ being
25 vertically adjustable relative to the shoe to suit
different heights of rails.

10. Apparatus according to claim 9, wherein two spaced-apart support members⁽³⁶⁾ are secured to each shoe⁽¹⁰⁾.
11. Apparatus according to any one of the preceding claims, wherein the shoes⁽¹⁰⁾ are provided with replaceable wear-strips⁽⁷⁰⁾ aligned with the load-sensing devices⁽⁴⁶⁾ for engagement by the peripheries of the flanges of the wheels.
12. Apparatus for indicating the load imposed by each axle and/or each wheel of a railway vehicle, constructed, arranged and adapted to operate substantially as hereinbefore described with reference to, and as illustrated by, the accompanying drawings.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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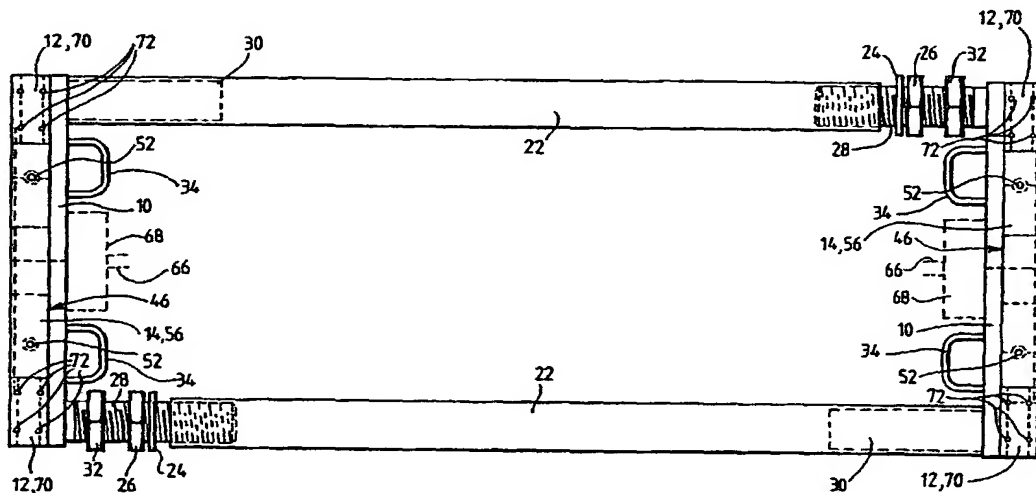
— *With international search report.*

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

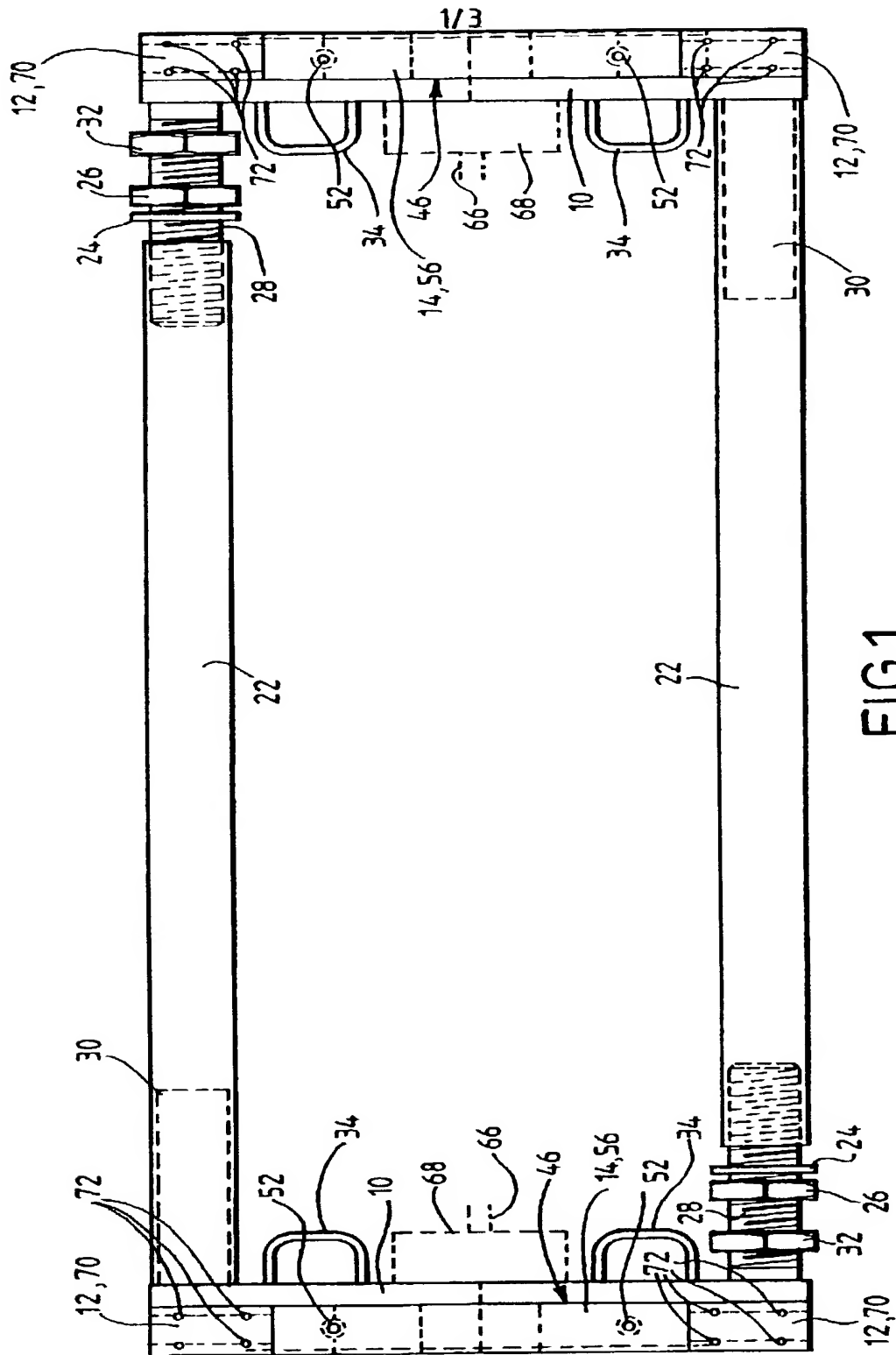
(54) Title: PORTABLE LOAD INDICATING DEVICE FOR A RAIL VEHICLE



(57) Abstract: The apparatus comprises two somewhat convex shoes (10) clampable along the adjacent sides of a pair of rails (16) for engagement by the peripheries of wheel flanges so that the wheels are raised just clear of the rails, a load-sensing device (46) at the highest portion of each shoe, and load-indicating means connected to the devices. The apparatus is sectional, the shoes being urged apart into rigidly clamped positions by two struts (22) separable from the shoes to facilitate portability. Two spaced-apart support members (36) are secured to each shoe to embrace its outer and lower faces, each support member being vertically adjustable relative to the shoe to suit different heights of rails. The shoes have replaceable wear-strips (70).



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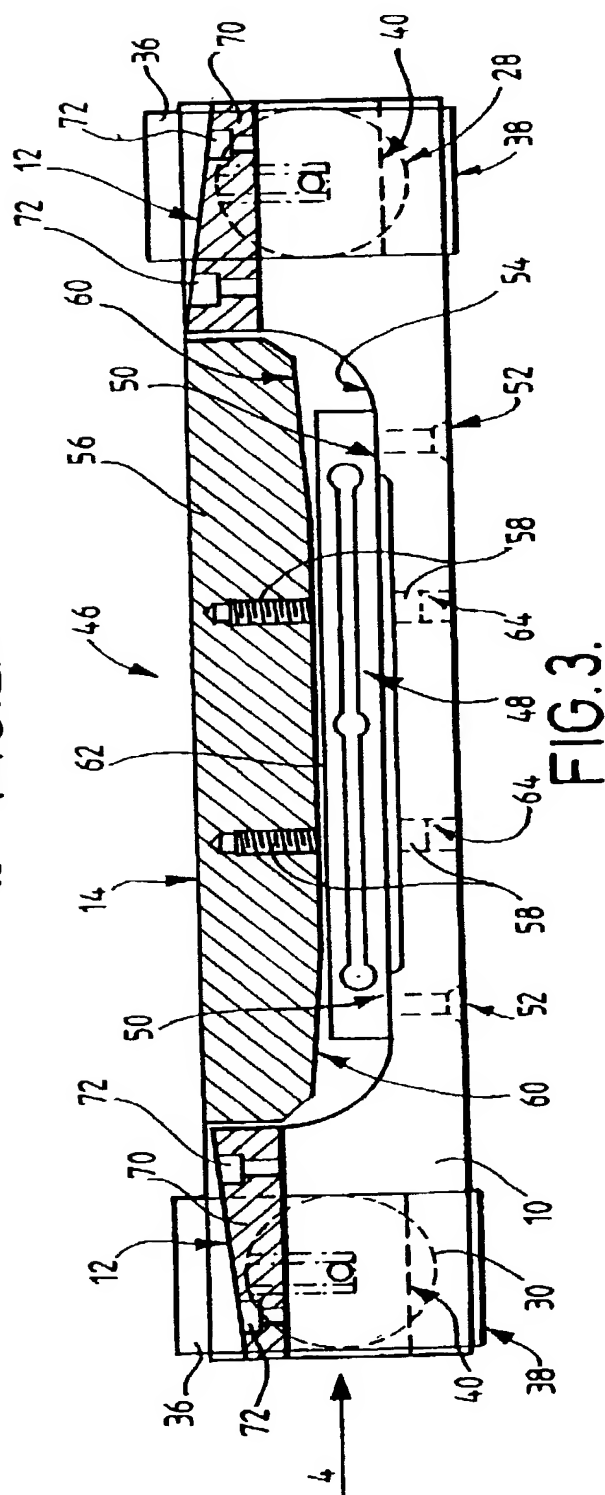




FIG.4.

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION OF 31402

As a below named inventor, I hereby declare that.

JUN 14 2002

My residence, post office address and citizenship are as stated below next to my name

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention, entitled PORTABLE LOAD INDICATING DEVICE FOR A RAIL VEHICLE

the specification of which

(check one) ☐ is attached hereto☒ was filed on February 28, 2002 asApplication Serial No 10/070,233and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1 56

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent of inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)	Country	Priority Claimed	Yes	No
9920715.1	GB	03 SEPTEMBER 1999	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
PCT/GB00/03333	PCT	31 AUGUST 2000	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below; insofar as the subject matter of each of the claims of the application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1 56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

(Application Serial Number)	(Filing Date)	(Status: patented, pending, abandoned)
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(Application Serial Number)	(Filing Date)	(Status: patented, pending, abandoned)
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POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Richard A. Giangiorgi, Reg. 24,284; Raiford A. Blackstone, Jr., Reg. 25,156; David J. Marr, Reg. 32,915; Linda L. Palomar, Reg. 37,903; James R. Foley, Reg. 39,979; James A. O'Malley, Reg. No. 45,952; Timothy M. McCarthy, Reg. No. 42,855; and Paige A. Kitzinger, Reg. No. 45,219

SEND CORRESPONDENCE TO.

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DIRECT TELEPHONE CALLS TO

(312) 704-1890 RICHARD A. GIANGIORGI ESQ REG. NO. 24,284

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that the statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18, United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor Paul Andrew HORSEFALLInventors signature [Signature]Date 27th March 2002Residence 2 Howcroft Gardens, Sandal, Wakefield, West Yorkshire WF2 6TW, EnglandENGCitizenship BritishPost Office Address as above

(Supply similar information and signature for second and subsequent joint inventors)